A Note on Seasonally Adjusted and Unadjusted Data

Because price data are used for different purposes by different groups, the Bureau of Labor Statistics publishes seasonally adjusted as well as unadjusted changes each month.

For analyzing general price trends in the economy, seasonally adjusted changes are usually preferred since they eliminate the effect of changes that normally occur at the same time and in about the same magnitude every year--such as price movements resulting from changing climatic conditions, production cycles, model changeovers, holidays, and sales.

The unadjusted data are of primary interest to consumers concerned about the prices they actually pay. Unadjusted data also are used extensively for escalation purposes. Many collective bargaining contract agreements and pension plans, for example, tie compensation changes to the Consumer Price Index unadjusted for seasonal variation.

Seasonal factors used in computing the seasonally adjusted indexes are derived by the X-12-ARIMA Seasonal Adjustment Method. The updated seasonal data at the end of 1977 replaced data from 1967 through 1977. Subsequent annual updates have replaced 5 years of seasonal data; e.g., data from 1997 through 2001 were replaced at the end of 2001. In January 2002, dependently seasonally adjusted series were revised for January 1987-December 2001 as a result of a change in the aggregation weights for dependently adjusted series. For further information, please see "Aggregation of Dependently Adjusted Seasonally Adjusted Series," in the October 2001 issue of the CPI Detailed Report.

The seasonal movement of all items and 54 other aggregations is derived by combining the seasonal movement of 73 selected components. Each year the seasonal status of every series is reevaluated based upon certain statistical criteria. If any of the 73 components change their seasonal adjustment status from seasonally adjusted to not seasonally adjusted, not seasonally adjusted data will be used for the last 5 years, but the seasonally adjusted indexes will be used before that period. Note: 39 of the 73 components are seasonally adjusted for 2002.

Seasonally adjusted data, including the All items index levels, are subject to revision for up to five years after their original release. For this reason, BLS advises against the use of these data in escalation agreements.

Effective with the calculation of the seasonal factors for 1990, the Bureau of Labor Statistics has used an enhanced seasonal adjustment procedure called Intervention Analysis Seasonal Adjustment for some CPI series. Intervention Analysis Seasonal Adjustment allows for better estimates of seasonally adjusted data. Extreme values and/or sharp movements which might distort the seasonal pattern are estimated and removed from the data prior to calculation of seasonal factors. Beginning with the calculation of seasonal factors for 1996, X-12-ARIMA software was used for Intervention Analysis Seasonal Adjustment.

For the fuel oil, natural gas, motor fuels, and educational books and supplies indexes, this procedure was used to offset the effects that extreme price volatility would otherwise have had on the estimates of seasonally adjusted data for those series. For the Nonalcoholic beverages index, the procedure was used to offset the effects of a large increase in coffee prices due to adverse weather. The procedure was used to account for unusual butter fat supply reductions and decreases in milk supply affecting the Fats and oils series. For the Water and sewerage maintenance index, the procedure was used to account for a data collection anomaly. It was used to offset an increase in summer demand in the Midwest and South for Electricity. For New vehicles, New cars, and New trucks, the procedure was used to offset the effects of a model changeover combined with financing incentives.

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A description of Intervention Analysis Seasonal Adjustment, as well as a list of unusual events modeled and seasonal factors for these items may be obtained by writing the Bureau of Labor Statistics, Division of Consumer Prices and Price Indexes, Washington, DC 20212 or by calling Daniel Chow on (202) 691-6968 or sending e-mail to Chow_Dan@BLS.GOV. If you have general questions about the CPI, please call our information staff at (202) 691-7000.

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